

What is claimed is:

1. A semiconductor device comprising:

a main semiconductor device having on a circuit-formation surface a plurality of power supply line connection pads and a plurality of ground line connection pads, conductors electrically connected to said power supply connection pads and the ground line connection pads, and capacitors electrically connected to at least one surface of said conductors.

2. A semiconductor device according to claim 1, wherein said capacitors function as decoupling capacitors suppressing or compensating for a momentary drop in a DC voltage supplied to said main semiconductor device.

3. A semiconductor device according to claim 1, wherein said power supply line connection pads and said ground line connection pads are alternately disposed along an edge extension direction of a peripheral edge of said circuit-formation surface of said main semiconductor device, and that said capacitor be provided connected between two neighboring conductors each connected respectively to a power supply line connection pad and a ground line connection pad.

4. A semiconductor device according to claim 1, wherein said conductor from said circuit-formation surface to a side surface of said main semiconductor device.

5. A semiconductor device according to claim 4, wherein said capacitor is provided on at least one side of said conductor at a part where said conductor is bent to a side surface of said main semiconductor device.

6. A semiconductor device according to claim 4, wherein said capacitor is provided on at least one side of said conductor, at a part at which said conductor is further bent from said side surface to a rear surface.

5 7. A semiconductor device according to claim 1, wherein either one of said power supply connection pad and said ground line connection pad is connected to said conductor by a bump made of solder or gold.

8. A semiconductor device according to claim 1, wherein
10 a flexible substrate comprising a metal foil lead serving as a conductor and an insulation layer provided at lease on a surface of said metal foil lead, said surface opposing to said main semiconductor device, is joined to a circuit-formation surface of said main semiconductor
15 device.

9. A semiconductor device according to claim 8, wherein said insulation layer comprises a thermoplastic adhesive.

10. A semiconductor device according to claim 8, wherein
20 said metal foil leads are formed on only a peripheral edge part of said circuit-formation surface of said main semiconductor device, a plurality of holes are provided on said insulation layer provided in a region formed on said circuit-formation surface of said main semiconductor device, and in said region, no metal foil lead is
25 provided, and at positions corresponding to said plurality of pads of said main semiconductor device, and a plurality of bumps of said main semiconductor device are caused to pass through each of said plurality of

holes, thereby making joints to each of said plurality of pads.

11. A semiconductor device according to claim 1, wherein a lead frame provided with a metal foil lead serving as a conductor and having an insulation layer formed on at least a surface thereof opposing said main semiconductor device, is joined to a circuit-formation surface of said semiconductor device.

12. A semiconductor device according to claim 11, wherein said insulation layer comprises a thermoplastic adhesive.

13. A semiconductor device according to claim 1, wherein said capacitor is a chip capacitor.

14. A method for mounting a semiconductor device according to claim 10, comprising the steps of:

fabricating a main semiconductor device in which said power supply line connection pads and said ground line connection pads are alternately placed on and along a peripheral edge of said circuit-formation surface of a main semiconductor device, and in which bumps are formed over pads in regions other than said peripheral edge part of said circuit-formation surface;

fabricating a flexible substrate joining a capacitor between two neighboring metal foils leads;

25 fabricating said semiconductor device by making electrical connections between said power supply line connection pads and said ground line connection pads both being formed at a peripheral edge part of said main

semiconductor device and said metal foil leads of said flexible substrate; and

mounting said semiconductor device onto said circuit board by placing said semiconductor device on said circuit board and heating it, so as to cause said bumps of said main semiconductor device to reflow.

15. A method for mounting a semiconductor device to a circuit board according to claim 14, whereby after mounting said semiconductor device to said circuit board, a resin is injected between a space between said semiconductor device and said circuit board.

16. A method for mounting a semiconductor device to a circuit board according to claim 14, whereby after mounting said semiconductor device to said circuit board, an unneeded part of said flexible substrate is cut away.

17. A method for mounting a semiconductor device according to claim 11, comprising the steps of:

fabricating a main semiconductor device in which said power supply line connection pads and said ground line connection pads are alternately placed on and along a peripheral edge of said circuit-formation surface of a main semiconductor device, and in which bumps are formed over pads in regions other than said peripheral edge part of said circuit-formation surface;

25 fabricating a lead frame with joining a capacitor between two neighboring metal foils leads;

fabricating said semiconductor device by making electrical connections between said power supply line connection pads and said ground line connection pads at a

peripheral edge part of said circuit formation surface formed on said main semiconductor device and said metal foil leads of said lead frame; and

mounting said semiconductor device onto said circuit
5 board by placing said semiconductor device on said circuit board and heating it, so as to cause said bumps of said main semiconductor device to reflow.

18. A method for mounting a semiconductor device to a circuit board according to claim 17, whereby after
10 mounting said semiconductor device to said circuit board, a resin is injected between a space between said semiconductor device and said circuit board.

19. A method for mounting a semiconductor device to a circuit board according to claim 14, whereby after
15 mounting said semiconductor device to said circuit board, an unneeded part of said lead frame is cut away.